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## **AIR ACCESS LIBERALISATION, MARKETING PROMOTION AND TOURISM TRADE**

### **Abstract:**

The objective of the present study is two-fold. Firstly, to assess the impact of air access liberalization on tourism demand for Mauritius and secondly to analyse the dual impact of the interplay between air access liberalization and marketing promotion efforts on tourism demand. Using an Autoregressive Distributed Lag model, the results suggest that air access liberalisation is an important ingredient, albeit to a lesser extent as compared to other classical explanatory variables, of tourism demand. The results also highlight the fact that Mauritius is perceived as a luxurious destination and tourists are also deemed to be price sensitive. Moreover our dynamic approach interestingly confirms the presence of repeat tourism in the island. Finally, the findings also uncover the positive impact of the interplay between air access liberalization and marketing promotion efforts on fostering tourism demand.

### **Keywords:**

Air Transport Liberalisation, Tourism, Autoregressive Distributed Lag Model.

**JEL Classification:** C22, F19

## 1. Introduction

The contribution of the tourism sector towards the economic development of nations has been well documented in the literature. From direct benefits which include creation of employment, generation of added value and tax revenue, boosting of inward foreign direct investment as well as generation of much needed foreign exchange to wider spillovers through skills diffusion as well as other related spillover benefits, the potential benefits which can be engendered by the tourism sector have been clearly spelt out in the literature (for e.g. see Sinclair (1998) for a comprehensive review).

Additionally, a second strand of the literature has sought to underline the elements underpinning tourists' decisions to visit a specific location (see Uysal and Crompton, 1984, Crouch, 1994a, 1994b, 1995; Eilat & Einav, 2004, Lim 2006; Li et al. 2005, Gomezelj, 2011, Kareem, 2009, Naudee and Sayman, 2004, Ibrahim, 2011, Lim and McAleer, 2001 among others). Among the most prominent determinants are: income in country of origin, the cost of travel, relative prices and tourism infrastructure (refer to Witt and Witt, 1995 and Lim, 1997 for a review of the empirical literature).

Given the above, a second strand of the literature has mainly focused on delineating the elements which attracted tourists to various destinations around the world and to that end, some of the more prominent determinants were namely: income of tourist's country of origin, the cost of travel, relative prices, exchange rates and tourism infrastructure (Witt and Witt, 1995, and Lim, 1997).

In addition to the above, air access liberalization is also regarded, albeit the discussion on such a factor has been relatively scant, as an important element for fostering tourism demand. Liberalisation of air transport will undoubtedly result in an expansion in airline capacity and competition on a destination's major routes with increases in air services between the destination and its major markets. The process is also expected to increase market access, de-restricted routes and allow competition in some or all of them, and abolish or ease price controls. Greater air access, it can be argued, fosters or induce competition and increased efficiency which can only lead to more competitive fares, which can only serve to boost tourist arrival in a particular destination. In this regard, the need for appropriate air access liberalization policies is even more pronounced in the case of Mauritius, a SIDS, given it is geographically isolated from most of its major tourism markets.

The prevalence of the tourism sector towards the economic development of the island is undeniable. Today, the tourism sector is considered as the second pillar of the economy, approximating 18% of GDP and tourists' earnings nearing Rs 4.5 billion in the year 2013. Tourist arrivals for the year 2013 were 1,294,387 and total passenger arrival is essentially by air (96.2%) by air and 3.8% by sea. And various factors have served to generate such an increase in revenue and tourist numbers. The element of trust as an element inducing

first time visitors and repeat tourists (Sannasee and Seetanah (2014)); infrastructure (Khadaroo and Seetanah (2007,2008)); and marketing promotion expenditure (Seetanah and Sannasee (2014) have been identified as some of these delineating elements.

In addition, and interestingly although the above mentioned elements have been perceived as crucial ingredients for fostering tourism demand, these have been largely examined in isolation and the interplay between some of these factors have been largely ignored. For instance, although marketing promotion and air access liberalization have been found to be significant contributors to increased tourism demand, the prevalence of the interplay between these two elements, that is, measuring their impact concurrently through the use of an interactive factor, towards tourism demand, is yet to be carried out.

As such, the aim of the present study is two-fold. Firstly, to assess the impact of air access liberalization on tourism demand for Mauritius and secondly to analyse the dual impact of the interplay of air access liberalization and marketing promotion efforts on tourism demand. In the case of the second objective, we argue the following: increased investment in marketing promotion may not generate the expected benefits if the appropriate air access policies are not in place. Similarly, establishing sound air access policies may not suffice if the government does not invest in an intensive marketing promotion strategy. Thus, we propound that the interplay between these two elements is crucial and as such the present study will proceed to analyse same.

The rest of the paper is structured as follows: section II deals with the related literature. Section III provides information on air access policies in Mauritius. Section IV highlights the model specifications, data collection and discusses the empirical findings. Section V concludes and provides the resulting policy implications.

## **2. Related Literature**

Ease of accessibility is a fundamental prerequisite for the development of any tourism destination. Development and advances in commercial aviation, fuelled by a continuous stream of innovations and favourable conditions<sup>1</sup> of air transport have stimulated the growth of the tourism sector, even more so, in long-haul tourism.

In addition, the gradual liberalization of air transport has enabled the creation of an efficient air transport structure based on free market mechanism and interestingly, given the bi-directional causal nature of the relationship between air transport and tourism industries, this has only served to boost the tourism industry worldwide (Bieger, 2006).

Tourism is likely to benefit from open skies policies. From a general stand, the benefits emanating from air transport liberalisation include the following: Firstly, at the

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<sup>1</sup> Two developments contributed significantly to growth of air transport. (1) The rapid development and application of technology have made it possible for aircraft to operate efficiently and safely. The latter has led to a lowering of air fares which has in turn allowed more people to use air transport on a routine basis (InterVISTA, 2006).

macroeconomic level, air transport liberalisation and the resulting improved accessibility of tourism regions can only serve to boost the level of output, increase employment and income within a national economy; at the microeconomic level, it is acknowledged that air liberalisation results in enhanced consumer choice, lower fares and consequently greater consumer surplus. In addition, the liberalisation of air services stimulates the creation and growth of low cost airlines, which in turn leads to a rapid expansion of traffic and tourism arrivals.

The literature on the link between air transport and tourism has been classified under several categories with one specifically delineating the interplay between tourism demand and air liberalization whilst others arguing for the indirect relationship. A significant strand of the literature has focused on the relationship between alternative aviation regimes and the tourism sector (Forsyth, 2006; Papatheodorou, 2002; Turton and Mutambirwa, 1996; Warnock-Smith and Morrell, 2008; Findlay and Forsyth, 1988; Warnock-Smith and O'Connell, 2011). In this regard, there is overwhelming consensus that there exists a positive relationship between the two elements<sup>2</sup>

In addition, a second area of investigation pertains to the impact of low cost carriers on tourism demand (Rey, Myro and Galera (2011); Castillo-Manzano, López-Valpuesta and González-Laxe (2011) and Davison and Ryley (2010)). Rey, Myro and Galera (2011) investigated the effect of LCCs on tourism in Spain and they found a positive direct and indirect effect of LCCs on the demand for tourism in Spain. Castillo-Manzano, López-Valpuesta and González-Laxe (2011) found that most of the tourism sectors consider LCCs to be perfect substitutes for network carriers and even improvements on these in most cases. Finally, Bieger and Wittmer (2006) found that the emergence of low cost airlines is a crucial step towards the development of air travel in tourism much in the same way as the development of the charter airlines and aviation deregulation.

The prevalence of charter flights on tourism demand is also an area which has been researched and most of the findings tend to highlight a direct link between the development of charter companies and tourism development. Laws (1997), for instance has argued that without regular access charter flights, it is almost impossible for mass-market tourism to attract sufficient visitors to sustain a fully developed tourism industry. Finally, transportation cost is yet another significant determinant of tourism demand (Crouch, 1995; Sinclair, 1998). In this regard, the literature tends to suggest that the demand for air travel is sensitive to changes in air travel prices and incomes<sup>3</sup>.

On the other hand, the prevalence of increased marketing promotion investment as a major contributor to increased tourism demand may be linked to the increased level of global competition for tourists as a result of globalization and more importantly as a result of the emergence of new competitive destinations coupled with tourists displaying greater

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<sup>2</sup> Except for Warnock-Smith and O'Connell (2011).

<sup>3</sup> See for example Oum, Waters and Yong (1992); Brons, et al. (2002) and Gillen, et al. (2003).

knowledge and degree of sophistication in relation to the differing tourism products. As such, promotional agencies are under increasing pressure to provide more pertinent and crucial information as regards the services offered (including hotel), activities, uniqueness of the destination and the country's culture among others.

However, one can argue that the literature focusing on the relative contribution of tourism promotion effort is relatively sparse to say the least; and those which are available are mostly geared towards developed countries' cases. Indeed, one of the few study analysing tourism efforts was provided by Uysal and Crompton (1984). They considered promotional expenditure as an element impacting upon international tourism flows to Turkey using an international tourism demand equation. The authors reported tourism promotion efforts to be a significant determinant for six of the 11 countries under study although their explanatory coefficients were relatively low. These findings tend to suggest that the investment in promoting Turkey as a tourist destination has been beneficial to a certain extent.

In one of the very few studies which focused on Africa, Naude and Saayman (2004) analysed the determinants of tourist attraction using panel data regression approach. Besides the usual classical elements, political stability, personal safety, existing infrastructure and tourism marketing efforts were also deemed to be crucial factors in enhancing tourist arrivals. Similar results were found by Seetanah and Sannassee (2014) in their study delineating the link between marketing promotion efforts and tourism demand for Mauritius<sup>4</sup>.

However, the preceding analysis has unfortunately only pertained to an investigation of air access liberalization and marketing promotion efforts as mutually exclusive determinants of tourism demand. We argue that this is not the case and we propound that there is an important interplay between these two elements. We further argue that regulations conducive for air access liberalization will not have the optimal benefits if these are not accompanied by an intensive marketing promotion campaign and vice versa.

### **3. Air Access Policy in Mauritius**

Air access to Mauritius is governed by the Civil Aviation Act 1974 and associated regulations which are in line with the provisions of the Convention on International Civil Aviation concluded at Chicago on 07 December 1944, which is referred to as the Chicago Convention.

Since August 2005, Mauritius is pursuing a gradual air transport liberalisation policy within the established bilateral framework through the adoption of a pragmatic approach

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<sup>4</sup> Other studies validating the role of tourism promotion can also be traced from Mazanec (2005), Fallon and Schofield, (2006), Scott, Laws and Boksberger (2009) and Correia and Kozak (2010).

to enhance seat capacity and competition on all routes with high growth potential. Furthermore, international air services between countries within the Indian Ocean are operated under the terms of bilateral air services agreements (ASAs) negotiated between the countries. Typically, these ASAs specify which airlines could operate between the two countries, the routes carriers could operate (e.g., which airports they could fly to), traffic rights that could be exercised by the designated airlines, limits on the frequency and capacity (seats) that the carriers could operate.

Mauritius has, up to now, signed Bilateral Air Services Agreements and Memoranda of Understanding with 40 countries. These Agreements provide, inter alia, for the designation of airlines, the route schedule, frequencies of flights to be operated on the agreed routes, capacity entitlements, as well as traffic rights.

**Table 1: Some key figures about the Mauritian Tourism Sector and Air Transport**

	1980	1990	2000	2010	2013
<b>Population of MUS</b>	1060000	1080000	1186140	1195433	1259838
<b>No. Hotels</b>	43	75	95	97	107
<b>Hotel Rooms</b>	2101	4603	8255	12275	12376
<b>Tourist arrival</b>	115080	291550	656543	702018	993106
<b>Tourism Receipts (% of GDP)</b>	6%	10%	14%	17%	18%
<b>% of arrival by Air</b>	98%	99.3%	98%	98.1%	98.5%
<b>No. of Bilateral Air Service Agreement</b>	10	17	27	35	40

The expansion of air services, it may be argued, is a necessary condition for the development of a more diversified export base development across the region and for the expansion of tourism in the region and in this regard, improvements in the air transport connectivity in the region would no doubt help the regional airlines in lowering transport costs, supporting more rapid economic growth and increasing personal mobility.

Interestingly, in order to enhance the confidence of the travelling passengers and the public in general in the aviation sector, the regulatory framework in Mauritius has been consistently reviewed and the European standards have been adopted for the regulation and supervision of the national airline, its certification process and the oversight system to ensure compliance with international standards of safety and security.

In addition, over the last decade, there has been a clear new strategic orientation aimed at improving the airport infrastructure and at undertaking a major overhaul of the Air Navigation Services through heavy investment to serve the national and international airlines operating in and out of Mauritius. Such a new emphasis is in line with the Government's strategy aimed at making Mauritius a hub for the region and for international travel.

In a similar vein, since 2005, Mauritius air access policy has been reviewed so as to provide a new impetus to the tourism sector and also to stimulate demand from markets with high potential, and at the same time induce more price elasticity in low season through the interplay of market forces. This has led to the promulgation of additional measures which include: air seat capacity and competition have been enhanced on routes with potential for growth; access to Mauritius has been opened to countries such as China, Russia, Sweden, Norway and Denmark which have a potential for tourist growth; schedule carriers have been allowed to operate supplementary flights during peak period and finally ad-hoc flights are also authorised as and when requested, on routes where there are no schedule carriers operations.

## 4. Methodology and Analysis

### 4.1. Model Specification and Data Source

The study follows earlier research by Khadaroo and Seetanah (2007, 2008), and Seetanah and Sannassee (2014) by specifying a demand function for international tourism and augmenting it with a proxy for air access liberalization/policy. The time series study is based on the period 1970-2013

The economic model is thus specified as follows

$$TR_t = f(GDPH_t, GDPF_t, HOTEL_t, RELATIVE_t, PROMO_t, AIR_t) \quad (1)$$

The dependent variable ( $TR$ ), the total number of tourist arrivals to Mauritius per annum, is the measure of demand for tourism. The data were obtained from the Central Statistical Office of the country.

Income in the country of origin is one of the key independent variable in the model. We follow the literature (Nordstom (2002) and Naude and Saayman (2004)) in using real Gross Domestic Product ( $GDPF$ ) per capita in countries of origin (weighted average) as a proxy for income in the origin country. Indeed, overseas travel (especially recreational) is relatively expensive and is often regarded as a luxury good and as such, the higher the income potential of prospective tourists, the more likely they will decide to undertake overseas vacations and holidaying. Such a variable is used to measure how the travelling habits of people in the origin country respond to a change in their wealth. This proxy was obtained and constructed from the Penn World Table 6.1, World Development Indicators and International Financial Statistics.

Demand for overseas travel in a particular destination is expected to be negatively related to relative tourism prices as higher within the country and relatively higher cost of living would make most tourists less enthusiastic about the destination. To capture the above

we follow Eilat and Einav (2004) and Naudee and Saayman (2004) by using the CPI of a destination country adjusted by the \$ exchange rate as a proxy for relative tourism prices to get relative prices (measured as *RELATIVE*). 'The inverse of it shows the many baskets of goods a tourist has to give up in his home country in order to buy a basket of goods in the destination country' (Eilat and Einav, 2004). This measure of relative prices captures changes in the real exchange rate over time as well as cross sectional variation in the cost of travel.

Urbanisation and development level (proxied by *GDPH*) of a destination country is consistent with more tourist arrivals, especially from developed countries. Tourist might prefer more developed destinations or a minimum development level in choosing their destination. This is proxied by the income (GDP per capita) of the destination country. The above three variables were obtained and constructed from the Penn World Table 7.1 and the CSO.

We follow the standard literature and use hotel rooms (*HOTEL*) available in the country as a measure for the capacity of the tourism sector; that is, the tourism infrastructure. The more the room the more the capacity and more competitive that country's tourism sector (cheaper price as competition). Moreover a minimum is hotel accommodation size needed for a destination to reach its critical mass and also to convince airlines to establish routes (Naudee and Saayman, 2004). Data on the number of rooms were obtained from the Central Statistical Office of the country.

Tourism marketing Promotion has been included in the conceptual framework as it is believed that destination marketing, especially for island economies, is very important since it provides extensive dissemination of crucial information about a destination and its attractions. Moreover, with the emergence of new competitive destinations coupled with tourists displaying greater knowledge and degree of sophistication in relation to the differing tourism products, the provision of more pertinent information as regards the services offered (including hotel), activities, uniqueness of the destination and the country's culture among others is becoming increasingly crucial. We draw from the authors' previous study (Seetanah and Sananssee, 2014), and proxy tourism promotion by the amount of money allocated and spent by the Mauritius tourism Promotion Agency (MTPA) which is the promotion agency of the country. The data in the present instance was extracted from the Accountant General Annual Report.

Furthermore, the present study is also extended to investigate the impact of the interplay between the potential effects of air access when accompanied by tourism promotion exercises. As mentioned previously, the interplay between these two factors may lead to synergistic benefits which may further boost tourism demand. We thus further extend our economic specification (in a second specification) to include an interactive variable (*airpromo*) and the results are displayed and discussed below.



The independent variable of particular interest to the study is the Air Liberalisation variable (*AIR*). The only consistent measure available is the number of bilateral air service agreements (BASA) signed by the Mauritian government with other countries since the first one in early 1970. This was made available by the Ministry of Tourism and External Communications..

## 4.2. Econometric Modeling

The baseline regression model of equation 1 can be written as:

$$tr_t = \beta_0 + \beta_1 gdp_h_t + \beta_2 gdp_f_t + \beta_3 relative_t + \beta_4 hotel_{it} + \beta_5 promo_t + \beta_6 air_t + \varepsilon_t \quad (2)$$

A log linear specification is used for ease of interpretation of the parameters and the small letters denotes the natural logarithm of the variables.

### 4.2.1. Tests of Stationarity.

Using both the augmented Dickey-Fuller (ADF) (1979) and Phillips-Perron (PP) (1988) unit-roots tests to investigate the data univariate properties, it was found that, except for the case of *air* which is reported to be an I(0) variable, there is evidence that the other series are non-stationary in levels but stationary in first difference (i.e. I(1) variables)<sup>5</sup>.

### 4.2.2. The Autoregressive Distributed Lag Model (ARDL)

In the presence of both I(0) and I(1) variable, we employ the testing and estimation procedure advanced in Pesaran et al (1997) and Pesaran and Shin (1999), namely the ARDL approach, to examine the existence of a long-term relationship (cointegration) in our analysis. This technique does not require the variables in the model to be I(1), or of the same order unlike other cointegration approaches such as the Johansen's (1988) Maximum Likelihood technique. Moreover the ARDL approach also allows us to incorporate dynamism in the analysis. As Seetanah and Khadaroo (2007,2008) and Naudee and Saayman (2004) have argued, there may be 'persistence/reputation effects' which apply over time in the tourists' decisions with respect to their holiday destinations. For instance, a tourist will return to a particular destination when he/she has had a good experience. This argument has not received due attention in the literature and it is believed that an analysis allowing for some dynamics would yield additional insights in the debate.

For the specification 1 above, the error correction version of the ARDL model in the variables *tr*, *gdph*, *gdpf*, *hotel*, *relative*, *promo* and *air* is given respectively by

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<sup>5</sup> This is also the case for the second specification which includes the interactive term (air access and tourism promotion)

$$\Delta tr = \beta_0 + \sum_{i=1}^n b_i \Delta tr_{t-i} + \sum_{i=1}^n c_i \Delta gdph_{t-i} + \sum_{i=1}^n d_i \Delta gdpf_{t-i} + \sum_{i=1}^n e_i \Delta relative_{t-i} + \sum_{i=1}^n f_i \Delta hotel_{t-i} + \sum_{i=1}^n g_i \Delta promo_{t-i} + \sum_{i=1}^n h_i \Delta air_{t-i} + \delta_1 \Delta tr_{t-1} + \delta_2 \Delta gdh_{t-1} + \delta_3 \Delta gdpf_{t-1} + \delta_4 \Delta relative_{t-1} + \delta_5 \Delta hotel_{t-1} + \delta_6 \Delta promo_{t-1} + \delta_7 \Delta air_{t-1} + \varepsilon_t$$

**(3)**

Since we have annual observations, we chose  $n=1$  for the maximum order of lags in the ARDL model in both cases and carry out the estimation over the period of study. In fact, the same lag length was chosen when using the final prediction error due to SBC.

For the model, the hypothesis that is being tested is the null of 'non-existence of the long run relationship' (see Pesaran et al., 1997) as defined by:

$$H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = \delta_7 = 0$$

And the alternative hypothesis is

$$H_1: \delta_1 \neq 0, \delta_2 \neq 0, \delta_3 \neq 0, \delta_4 \neq 0, \delta_5 \neq 0, \delta_6 \neq 0, \delta_7 \neq 0$$

The recommended statistic is the F statistics for the joint significance of  $\delta_1, \delta_2, \delta_3, \delta_4, \delta_5, \delta_6$  and  $\delta_7$ . Computation of this F statistic requires running the following regression:

$$\Delta tr_t = \beta_0 + b \Delta tr_{t-1} + c \Delta gdh_{t-1} + d \Delta gdpf_{t-1} + e \Delta relative_{t-1} + f \Delta hotel_{t-1} + g \Delta promo_{t-1} + h \Delta air_{t-1} + \varepsilon_t$$

**(4)**

and a variable addition test is subsequently made by including the following:

$$\delta_1 tr_{t-1}, \delta_2 gdph_{t-1}, \delta_3 gdpf_{t-1}, \delta_4 relative_{t-1}, \delta_5 hotel_{t-1}, \delta_6 promo, \delta_7 air$$

The F-Statistics  $F(tr/gdph, gdpf, hotel, relative, promo, air)$  equates 5.66 and exceeds the upper bound of the critical value band, thus rejecting the null hypothesis of a no long run relationship between the variables irrespective of their order.

#### 4.2.3. Estimation results

Given the existence of cointegration, the unrestricted error correction representation of the ARDL model is given by equation 3. We now estimate the coefficients of the long run relations and the associated Error Correction Model (ECM) using the ARDL approach. The order of the distributed lag on the dependent variable is one and was selected by the Schwartz Bayesian Criterion (SBC)<sup>6</sup>.

The SBC criteria selects the ARDL (1,1,1,,0,0,0,1) for the model. The long run estimated coefficients are shown in Table 2 below.

<sup>6</sup> Pesaran et al (1997) found that SBC is preferable to AIC, as it is a parsimonious model that selects the smallest possible lag length, while AIC selects the maximum relevant lag length

**Table 2: Estimated Long run Coefficients based on ARDL approach.**Dependent variable is *tr*

Regressor	Coefficient (SBC 1,1,1,0,0,1)	Coefficient (SBC 1,1,1,0,0,1,1) Including interactive variable airpromo
<i>gdph</i>	0.63***	0.69***
<i>gdpf</i>	1.76***	1.67***
<i>relative</i>	-0.384*	--0.43*
<i>hotel</i>	0.62*	0.57*
<i>promo</i>	0.23*	0.21*
<i>air</i>	0.29***	0.34
<b>Airpromo</b>		0.24**
<i>constant</i>	12.31**	2.27**

- Significant at 10% \*\* significant at 5% and \*\*\* significant at 1%

Air access liberalisation is observed to have positively contributed, though to a lesser extent as compared to the other classical determinants, to an increase in tourism demand (with a tourist elasticity of 0.28) in the long run, thus confirming the theoretical underpinnings. Such a finding is in line with previous studies including the likes of Forsyth, (2006); Papatheodorou, (2002); Turton and Mutambirwa, (1996); Findlay and Forsyth, (1988); and Warnock-Smith and O'Connell, (2011). Nevertheless, this is hardly surprising since the liberalisation of air transport is expected to foster or to induce competition and increased efficiency which can only lead to more competitive fares, and this can only serve to boost tourist arrival in a particular destination. Interestingly also, the result clearly provides support to the Government's strategy to pursue a gradual air transport liberalisation policy within the established bilateral framework through the adoption of a pragmatic approach to enhance seat capacity and competition on all routes with high growth potential.

The positive and significant coefficients of the level of development in the island and tourism infrastructure show their respective importance in the tourism equation. Interestingly, Mauritius is also perceived as a luxury destination as demonstrated by the high coefficient of income in the country of origin, a measure of income elasticity. Tourists are also seen to be price sensitive as revealed by the negative and significant coefficient of the variable *relative* (in line with recent study by Seetanah and Sannasse (2015)). The coefficient is nonetheless on the low side as compared to the literature (see Witt and Witt, 1995; Lim, 1997) but such a finding may be explained by the relatively

lower price level in the country by international standards. Tourists are also observed to be relatively receptive to the various promotion exercises undertaken by the promotion agencies of the island.

Column 3 depicts the set of results for the extended study incorporating the interplay between air access liberalisation and marketing promotion. The results of the ARDL are shown after extending the regression specification by including an interactive dummy (*airpromo*). The interactive variable of the column reveals that the interplay between these two determinants may generate further demand for the island's tourism products. Such a finding is extremely intuitive and highlights the importance of a holistic approach to promoting the tourism sector. It clearly highlights the need for concurrent strategic policies aimed at liberalizing air access and which are backed up by intensive promotion campaigns in those countries targeted by such air access liberalization measures.

Table 3 reports the estimation of the error correction model associated with our long run estimates using SBC respectively.

**Table 3: Error Correction Representation for the Selected ARDL model**

**Dependent variable is *tr***

Regressor	Coefficient SBC (1,1,1,0,0,,0,1)	Coefficient (SBC 1,1,1,0,0,0,1,1) Including interactive variable <i>airpromo</i>
$\Delta gdph$	0.63**	0.54**
$\Delta gdpf$	164**	1.45**
$\Delta relative$	-0.361*	-0.27*
$\Delta hotel$	0.31**	0.24*
$\Delta promo$	0.13*	0.08*
$\Delta air$	0.13*	0.145*
<b><i>Airpromo</i></b>		0.17*
Ecm(-1)	-0.23**	0.29
R sqr	0.77	0.72
DW	2.22	2,12

- Significant at 10% \*\* significant at 5% and \*\*\* significant at 1%

Table 3 shows the short run estimates of the variables and the error correction model's results. Results suggest that liberalisation of the air access since the 1970's has also been one of the ingredients, albeit again to a lesser extent as compared to the other dependent variables, of tourism development in the short run. The lower coefficient value in the present instance in relation to the estimated long run coefficient indicates that such liberalisation policies may have some lagged effects. Such a finding is to be expected

since the impact of the liberalisation of air transport is expected to take time insofar as increased competition which permeates to increased efficiency with the resulting impact of reduced air fares is more of a medium to long term phenomenon. Hence, the resulting impact on tourism demand is expected to be more pronounced in the long run rather than in the short term. This is indeed confirmed by the results in table 2 for the case of the significant lagged *air* coefficient. A similar result is also noted for the interactive dummy which denotes a positive and significant relationship albeit the short term effect is less pronounced. In this regard, a similar line of reasoning may be provided in that it takes time for the impact of changes in air access policies accompanied by more intensive promotion efforts to kick in. The coefficients for the other explanatory variables are well behaved and have the expected sign and significance.

Lastly, the coefficient of the error correction model (ECM) of the ARDL specification is negative and highly significant at 5% level. The coefficient of the ECM is around -0.23 and implies that a deviation from the long-run equilibrium following a short-run shock is corrected by about 23 per cent after each year. Above all, it confirms the existence of a stable long-run relationship (co-integration relationship) between the variables. The ECM represents the speed of adjustment to restore equilibrium in the dynamic model following a disturbance.

## 5. Conclusion

The present study has, in the first instance, attempted to gauge the contribution of air access liberalisation on tourism development for the case of the small island economy of Mauritius for the period 1970-2013. Given that not all the series are stationary to the same level, the study accordingly applied an Autoregressive Distributed Lag Model to an extended demand tourism function. The results showed that air access liberalisation has contributed positively, albeit to a lesser extent as compared to other classical determinants, to the number of tourist arrivals in both the short and long run. In addition, the high income elasticity also suggested that Mauritius is considered as a luxurious destination. Furthermore, tourists were also found to be price sensitive. Tourism infrastructure and the island's development level were also regarded as important ingredients explaining greater tourist arrivals. Finally, there was also evidence in support of repeat tourism on the island.

Secondly, and most interestingly, the impact of the interplay between air access liberalization and promotion efforts has also been analysed through the use of an interactive dummy. The results have shown that the implementation of concurrent policy measures geared at fostering air access liberalization and the promotion of marketing efforts has also contributed to further enhance tourism demand.

The above findings may have far reaching implications. Firstly, one can argue that some progress towards progressive liberalization of air access has been achieved within the bilateral framework through the implementation of open skies agreements. Yet, more still needs to be done. Ownership and control rules most certainly represent the most difficult issue to resolve with Mauritius still adopting a relatively conservative approach in this area.

Second, as Forsyth (2001) has argued, aviation policies represent a balance between the interests of consumers and the aviation and tourism industries and although there has been a shift in favour of consumers in many parts of the world, this is yet to happen for Mauritius, with the policies overtly geared towards protecting the national airline, namely Air Mauritius. Unless, there is a profound change in policy focus, the benefits stemming from greater air access liberalization such as increased competition leading to reduced air fares and the provision of better services will not materialize.

Thirdly, the findings also call for a holistic approach to tourism development. The impact of the interplay between air access liberalization and promotion efforts clearly highlights such a need. As such, it is crucial that any measures, aimed at promulgating greater air access, need to be also accompanied by increased investment on promotion events and vice versa. This clearly calls for greater interaction between various stakeholders under whose ambit these strategic decisions fall.

Finally, we believe it is crucial to highlight some of the negative impact of greater air access liberalization. Although at present, Mauritius is very much still considered as a luxurious destination, however, any strategic move promoting an influx of charter flights and/or promulgating mass tourism may be harmful to the local economy with serious implications for the environment.

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